M·A·P·S Digest

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Mid-America Paleontology Society

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A LOVE OF FOSSILS BRINGS US TOGETHER

MARK YOUR CALENDARS

Apr 8-10, 2005: MAPS NATIONAL FOSSIL EXPOSITION XXVII – Bivalves
Western Illinois University, Western Hall, Macomb, IL
Fri., Apr 8 8 am - 5 pm—Keynote Speaker, Dr. Jack Bailey @ 7:30
Sat., Mar 27 8 am - 5 pm—Meeting & Live Auction @ 7:00
Sun., Mar 28 8 am - 12 noon
Information will be in the December issue.

Nov. 20, 2004 MAPS Meeting

Room 125 Trowbridge Hall, University of Iowa

A 1-2 hour business meeting will be followed by a program presented by Scott Carpenter, an adjunct Associate Professor in the U of I Department of Geosience. Scott is currently involved in a study of the geochemical reasons for the decline of fresh water mussels in Iowa's rivers over the past 125 years. His presentation will be on some of his studies on fossil fish and bivalves involving isotope data and paleo-environmental interpretations.

http://www.uiowa.edu/~geology/people/faculty/carpenter/index.htm

Jan. 8, 2005 MAPS Meeting

Norton Geology Center, Cornell College, Mt. Vernon, Iowa.

The regular business meeting will run from 1-2 p.m followed by a program presented by Dr. Ben Greenstein, Associate Professor at Cornell College, on his recent studies of coral reefs in Western Australia. Please not that this meeting is at Cornell College, not at the University of Iowa.

February 12, 2005 MAPS Meeting

Room 125, Trowbridge Hall, University of Iowa

The regular business meeting will run from 1-2 p..m followed by a program presented by James Huber, an adjunct Associate Professor in the U of I Department of Geoscience and owner of James K. Huber Consulting in Vinton, IA. The title of his presentation will be "Palynology: an overview of 25 years in the field".

James has done some work on the giant ground sloth recently found in western Iowa.

ABOUT THE COVER

Photo by Marv Houg

This month's cover photo is of an external mold of an unidentified starfish found by John Catalani during the MAPS October field trip to the Conklin Quarry near Coralville, Iowa.

Story on page 3.

February 19-20 Burpee Dinoblast

The Burpee Museum of Natural History, Rockford, IL, will host its 7th annual PaleoFest February 19 and 20, 2005. There will be Children DinoBlast Activities, Family Workshops and Adult Lectures Series. The highlight of this year's event is the unveiling of the reconstructed skull of JANE, Burpee's celebrated tyrannosurid discovered during a Burpee expedition in the summer of 2001 to the Montana Badlands. PaleoFest dinner Saturday evening at the Clock Tower Resort & Conference Center features guest speaker, Paul Sereno, Ph.D., University of Chicago.

2004/04 to 2004/09 DUES ARE DUE

Are your dues due? You can tell by checking your mailing label. It reflects dues received by Nov. 15, 2004. The top line gives the expiration date in the form of "year" followed by "month" – 2004/09 means 2004/September. Dues cover the issue of the Digest for the month in which they expire. We do not send notices but will let you know if you are overdue by highlighting your mailing label and stamping your Digest. We carry overdues for two issues before dropping them from our mailing list.

Please include on your check your due date and name exactly as it appears on your mailing label - or include a label.

Dues are $20 per U.S./Canadian household per year. Overseas members may choose the $20 fee to receive the Digest by surface mail or a $30 fee to receive it by air mail. (Please send a check drawn on a United States bank in US funds; US currency; a money order; or a check drawn on an International bank in your currency.) Library/Institution fee is $25.

Make check payable to MAPS and mail to:
Sharon Sonnleitner, Treas.
4800 Sunset Dr. SW
Cedar Rapids, IA 52404

DIGEST CONTRIBUTIONS WANTED

Articles and other materials of paleontological interested are needed for future issues of the Digest. Soft copy in Microsoft Word is preferred. Please email materials if possible to either: fossilnautiloid@aol.com or cdcozart@aol.com

October 17, 2004 MAPS Field trip to Conklin Quarry

On a crisp, cool Sunday morning fifty MAPS and Cedar Valley Rocks & Mineral Society member met at the gate of the Conklin Quarry near Coralville, Iowa. Marv Houg led the group into the quarry to collect fossil in the Cedar Valley Formation of the middle Devonian period.

According to McGee, 1891, p. 214-315, "The Cedar Valley Limestone is widely diverse in lithologic, paleontologic and structural characters. It consists predominantly of limestones, ranging from pure to argillaceous, dolomitic, or perhaps carbonaceous. Sometimes it is regularly divided by smooth bedding planes, again it is massive, elsewhere finely laminated, and frequently brecciated in a peculiar manner. Sometimes the strata are horizontal, but elsewhere they are locally inclined to every point of te compass and at all angles up to 10 or 15 degrees. Sometimes the mass is so richly fossiliferous that well preserved fossils may be collected by the bushel, while again it is quite destitute of fossils over wide areas."

View of quarry floor – Marv Houg photo

Crinoid plate – Marv Houg photo

The Conkin Quarry is remarkable because of the quality and quantity of nice fossil specimens that have been collected there. Corals, brachiopods and bryozoans were found in abundance on the 17th. Several nice crinoid crowns were collected along with a remarkable impression of a starfish (See cover). Many nice Phacopid trilobites were found in the middle and lower levels of the quarry.

Some members of the field trip party investigated some Pennsylvanian shale recently exposed at the top of the quarry. Some interesting plant material was recovered, including Lepidodendron bark and cones.

Everyone leaving the quarry seemed to have found at least one nice specimen to add to their collection. Thank you again Marv for leading another successful field trip.

President's Message

As President of Mid America Paleontology Society (MAPS), along with the MAPS members and MAPS Board of Directors, I would like to extend a very special thank you to Sharon Sonnleitner for her countless hours of work publishing the MAPS Digest. Sharon's work on the Digest and as Treasurer of MAPS has far exceeded any other MAPS member's contributions to our organization in recent years.

With that said, I would like to announce that John Catalani and Chris Cozart have agreed to lighten some of Sharon's workload by taking over publication of the MAPS Digest. I would like to encourage everyone to help them by contributing paleontological articles. Articles may be on a professional or non-professional level.

Thank you again Sharon and good luck to John and Chris

Karl Stuekerjuergen

Technology *vs* Progress in Paleontology

By John A. Catalani
Fossilnautiloid@aol.com

Achievements such as the various Mars rovers that have been sent to The Red Planet underscore the obvious fact that the level of technology has increased dramatically in the past 10 or so years. This is also reflected in advances in such diverse areas as sophisticated home computers, robotic space probes (such as Cassini now orbiting Saturn), military "smart" weapons (a dubious achievement to be sure), Las Vegas casinos, and motion picture special effects. It has come to the point where the American public has grown to expect a high degree of technology in virtually everything we engage in--we like to be entertained in spectacular fashion. The computer-generated dinosaurs in the *Jurassic Park* trilogy are specific examples--no longer are audiences satisfied by the stop-motion effects of such masters as Ray Harryhausen. Our preoccupation with changing technology has apparently also affected our ability to learn and may even be impacting the paleontological literature. Let me explain.

This penchant for both state-of-the-art technology and entertainment is reflected, I believe, in the recently renovated paleontology exhibits of many major museums around the world (the prestigious British Museum of Natural History is, from what I have been told, not immune to such changes). Apparently, the question the museums asked themselves was: "Should we entertain people with trendy 'touchy-feely' displays and 'cutesy' phraseology in the hope that visitors will be enticed into investigating science on their own (yeah, like that's going to happen) or should we, using real fossil specimens and intelligent text that does not patronize, instruct and inspire visitors on site?" Those museums choosing the former evidently felt that the traditional exhibits of fossil shells or skeletons were no longer adequate to attract visitors to their museums. Chronologic (Ordovician, Silurian, etc.) and taxonomic (cephalopods, echinoderms, etc.) displays of the classic "cabinet museums" have been replaced with walk-through-time exhibits, fiberglass replicas, plastic toys, interactive computer screens, and flashing lights. In my opinion, these exhibits teach very little about evolutionary history and no longer display the past and present diversity of life on Earth--the reason natural history museums were started in the first place.

From what I have seen, the ultimate in glitzy displays was the "Life Over Time" exhibit at Chicago's Field Museum. There was a plethora of neon lights, toys (the cars and kitchen utensils really had me wondering what the thought process here was), push-pull-spin interactives, and computer

monitors all intended to simulate or serve as metaphors for one evolutionary process or another--not very successfully, in my opinion. As usual, invertebrates were given minimal treatment with small displays on various groups (brachiopods, trilobites, etc.) that mixed fossils from several geologic period (the only time scale displayed was presented right at the entrance to the exhibit and was overlooked, I imagine, by many) limiting the context and continuity of these specimens in terms of evolution. For example, cephalopods were given one small display and, from this, one was supposed to figure out that there are three major groups and that ammonoids also had three major groups--good thing I knew this ahead of time. Although the Field Museum holds, I am told, the finest Mazon Creek collection in the world (you know Mazon Creek--it's in Illinois, the same state the Field Museum is in), the display on this significant fauna/flora barely covered one small wall and the specimens available were placed in drawers that were often overlooked by those mesmerized by the flashing lights and computer screens (that often didn't work, by the way, frustrating many visitors). They even had simulated news broadcasts on closed-circuit television screens throughout the exhibit with the anchors presenting facts about the geologic periods (remember that time-scale at the entrance--I wonder how many did) as if they were contemporary, fast-breaking news items. My first thought at seeing this was the possibility (hopefully a slim one) of some visitors incorrectly assuming that humans were around during these time periods. Those of us in MAPS can laugh about this but how many museum visitors were not as knowledgeable as we are and became somewhat confused and disenchanted with the exhibit. The vertebrate displays of the Mesozoic and Cenozoic provided more in the way of real specimens and information presented although the "dioramas" in the Mesozoic exhibit were unbelievably small and the barber's chair in one Cenozoic display defied any reason what so ever. As a member of the Field Museum, I was more than a little disappointed with the exhibit. However, hope springs eternal. I speak of the Field Museum exhibit in the past tense since, after only 10 years or so, there is another renovation in progress. This new attempt is due to open sometime in 2006. Although I am certain the new exhibit will emphasize vertebrates particularly dinosaurs (T. rex "Sue" was, I have to admit, a spectacular addition to the museum), I am hopeful that invertebrates, as well as the entire Mazon Creek experience, will receive better treatment so that a continuity of the evolution of life on Earth can be displayed which will place the specimens displayed in a complete context not just individual segmented displays (don't want much do I).

Now don't get me wrong, some renovated exhibits are very well done. For example, the American Museum of Natural History, New York, uses a cladistic approach in their vertebrate halls in which significant nodes in derived characteristics are used as jumping-off points into side displays thus illustrating the branching off of the various vertebrate groups. In this exhibit, large numbers of real specimens are displayed, insightful text is presented, and interactive displays are kept to a minimum. However, once again, invertebrate displays are essentially non-existent.

Natural history museums have a tradition of providing the general public with a glimpse of the diversity of life on Earth, past and present, and of informing said public of how such animals and plants are related and evolved. My interest in paleontology may not have been initiated in a museum but it was certainly fostered and encouraged by the many traditional displays of fossils at the Field Museum. I fondly remember when, as a child, Mom and Dad and I would drive into the "big city" to visit the Field Museum. I would immediately, upon arrival, head straight for the geology and paleontology halls. There, I would view each case and display as if for the first time, checking out each specimen and reading every tag that accompanied them. At first, I gravitated toward the geologic period displays with their large-scale sea-floor reconstructions and abundance of real fossils on display. I learned quickly, for example, the interesting fact that Chicago's bedrock was of Silurian age while the bedrock under my hometown of Rockford was from the Ordovician Period. Even at that young age, I noticed that the fossils of the Silurian and Ordovician periods were very similar but not exactly the same--the result of the many specimens displayed. (The large nautiloid in the Ordovician display became like an old friend, one to be visited periodically--perhaps he will return in the new displays.) I conveyed my newfound knowledge to my parents who nodded absentmindedly--little did they know what was to follow.

As I grew older, the taxonomic exhibits interested me more--particularly, of course, the cephalopod display. Each major phylum and class had their own large cabinet displaying various species/genera (once again real fossils) and outlining basic evolutionary trends that reflected, of

course, accumulated knowledge up to that time. Certainly they had vertebrates displayed, but it was the enormous numbers of invertebrate fossils, some collected near my home, which held my attention (the invertebrate and time-period displays filled a hall as large or larger that that for vertebrates--a fair treatment rarely practiced by present day museums). Certainly our views on evolutionary relationships have changed to reflect current knowledge but I believe the public would have been better served by updating and expanding the traditional displays that showed fossil specimens, both invertebrate and vertebrate, in their proper context and relationship to one another. In this way, the ambiance of traditional fossil halls could have been retained while still presenting up-to-date information and, yes, computer displays where appropriate--a compromise that would have, I believe, satisfied more visitors. I wait with anticipation and trepidation the opening of the new exhibit at the Field Museum.

Is changing technology in the form of advanced computer hardware and sophisticated software also affecting the paleontological literature? Almost assuredly. I have noticed a dramatic rise in the number of analytical papers utilizing aggressive number crunching and computer simulations as well as enhanced graphics gracing the pages of many paleontological journals. Now let me state immediately that by no means is my aim, as an amateur, to criticize these papers. I consider such analytical papers valuable and important contributions to the science of paleontology since paleontologists should definitely take advantage of new techniques. I even understand some of them, at least when they deal with cephalopods (although I confess that, when confronted by a paper with more equations than my daughter's algebra book, I jump from the abstract to the conclusion and pray for divine guidance). My concern, one shared by many amateur and professional paleontologists that I have talked with, is that a point may soon be reached when we will be analyzing essentially the same data set just in different ways. Certainly we can all benefit from a new way to look at our fossil specimens but it seems to me that the real advancements in paleontology come from the field where new specimens (hopefully more than just dinosaurs) are collected--collected so that the sophisticated analytical techniques mentioned above have a more complete data set to work with. These new specimens will not just add to our data set but will eventually end up in our museums and, with any luck, on display so that others may be encouraged to continue the collecting tradition. In my slightly biased opinion, fieldwork and specimen collecting is not only what allows paleontology to progress and remain viable but is one of the most appealing aspects of our science.

Consider for a moment astronomers who must carry out "fieldwork" by remote control--they are really dependant on technological advances in space probes and telescope instrumentation. The only specimens they can consult are some meteorites, tektites, and a few moon rocks (Mars rocks coming soon). Or consider particle physicists who cannot even see the objects of their research. We in paleontology are very fortunate since our data consists of real specimens collected in the field (the "thrill of the hunt", as it were) with the opportunity to place these specimens in context by analyzing the collecting site. Personally, I think that it is vital for all paleontologists, amateur and professional, to be in the field not only to personally collect specimens for research but also to get a "feel" for the site such as the entire fauna present, the mode of preservation, and the rocks that entomb the fossils--nuances impossible from a computer. It is beyond me how some can sit behind a computer keyboard exclusively or use the "golden pick" and consider this paleontology. I totally agree with the opinion stated by the (somewhat) fictitious paleontologist Alan Grant in the movie *Jurassic Park*. When confronted with a computer monitor that has just received seismic data allowing an image of a skeleton of *Velociraptor* to appear on the screen, the technician states assuredly that "we won't even have to dig anymore" to which Grant replies, "Where's the fun in that?" It was for the fun of collecting fossils that most of us got involved, at various levels, with the science of paleontology in the first place and it was with collected specimens that the myths concerning past life on Earth could be replaced with facts.

So, this essay is only intended to be a cautionary note concerning the use, and possible overuse, of technology. I have nothing against these new technologies per se. But even with space probes as sophisticated as the Mars rovers, a human "field trip" will probably be required to settle the life-on-Mars (present and/or past) debate. I also realize that the arrow of time points in only one direction (no matter what physicists have said) and that change is inevitable. Technology in and of itself is neither good nor bad. That judgment is reserved for how we use said technology--to assist

in the collection and analysis of data or merely change for the sake of change. Yes, computers, though limited as are all machines, are invaluable tools to help us sort and organize large amounts of data particularly character sets in cladistic analysis. However, one does not need computer analysis to achieve significant conclusions--freethinking speculation that results from a reflective analysis of specimens and their context has always been a hallmark of paleontology.

Perhaps my concern stems from the fact that most of us amateurs practice paleontology pretty much exclusively in the field (and, as a result, our homes often look like those old-time museums lamented above). We amateurs collect frequently and aggressively, we outnumber professionals, and we usually have more time available to pursue fieldwork than the academic professional who must be concerned with more than just their research interests particularly if they are presently in that most dreaded of positions, the department chair. Thus, the collections of the many serious amateurs can be important sources of paleontological data if specimens are collected carefully, fully documented with field notes, and made available to professionals in a collegial atmosphere. Such a spirit of cooperation between the amateur and the professional, therefore, has the potential to produce very significant contributions to the science of paleontology.

We paleontologists should not lose our focus by directing efforts away from the field collecting that has been paleontology's very foundation in favor of trendy analytical techniques--we don't want to do anything that might limit our options downstream. Nor, obviously, am I advocating the practice of field collecting exclusively--fossils without analysis and context become mere artifacts of bygone ages to collect dust on someone's mantle. We need both avenues working together in harmony to insure paleontological productivity (and I fervently hope that journal editors continue to accept a variety of papers based on all methodologies). Museums can help by returning to the tradition of displaying specimens and showing how they are properly collected to inspire budding paleontologists and encourage the pursuit of paleontology as a career. In my opinion, to keep paleontology viable we need the constant supply of new field data that taxonomic and paleoecologic papers provide and the healthy speculation that a thoughtful analysis of fossils offers. In this way, we can insure the viability and advancement of what I consider the most important of all the sciences because paleontology deals with nothing less than the history of life on Earth and, ultimately, our place in the "field of dreams" in which we collect our fossils.

(Reprinted with modifications from *American Paleontologist* August 1998 courtesy of the Paleontological Research Institution.